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Hints on Grape Culture.—XXIV.

In our last we left the vine at the close of the fourth year, but not yet pruned. In order to help the reader to understand the subject as fully as possible, we have prepared, with much care, and on a large scale, a section of the trellis, with the vines. Our engraver, Mr. S. E. Brown, has executed the drawing with more than ordinary faithfulness. We consider it one of the best things of the kind yet published. The engraving is drawn to a scale of three quarters of an inch to the foot, and is true in all its parts; the reader can, therefore, study it with some hope of being benefited. The vines are represented as pruned. The dotted lines are to be disregarded till a future occasion.

It may be well to pause a moment, and take a review of the subject, as presented in the engraving.

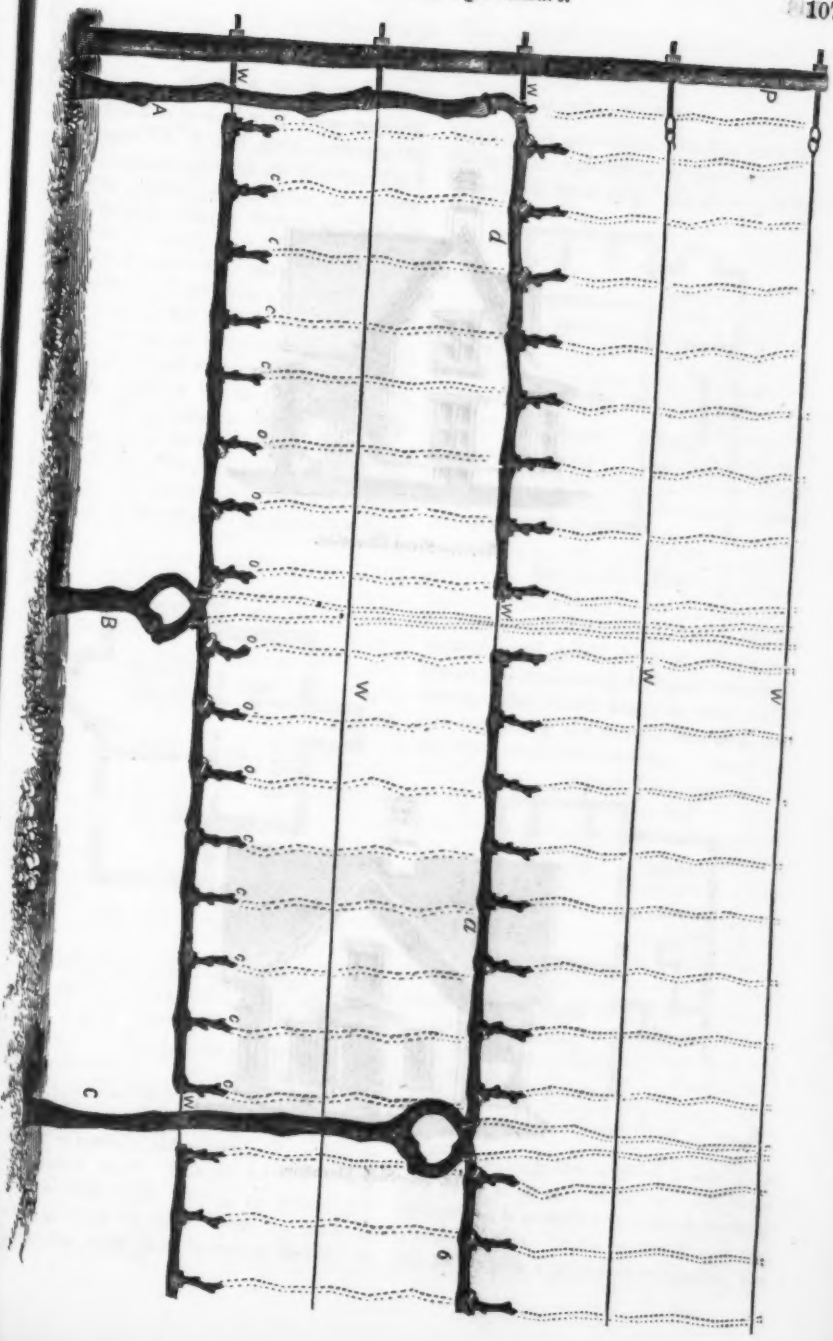
P is the end post, to which the wires, *w*, are attached with screw eyes, working in a nut, which may be winged, when it can usually be worked by the thumb and fingers. It is square in the engraving. *A* is the end vine, and has only a single arm, *d*, on the upper course, which fills the trellis symmetrically. *B* is the vine which has heretofore been the subject of our illustrations. It occupies the lower wire. The six spurs marked *o* are two years old; the ten marked *c* are one year old, being on that part of the arm last laid in. *C* is a vine furnishing two arms for the upper course; the arm *a* is shown its full length; the arm *b* is shown only in part, the size of our page not allowing us to show more. On the right of *C* is seen the end of the arm of the adjoining vine of the lower course. The whole trellis is covered by two courses of arms, in the manner here shown; the other end being finished by a vine with a single arm, like *A*. This single arm may be on either the upper or lower course, according to circumstances, though we prefer to have all the single arms on the upper course. The reader will observe that the arms are all well balanced, being equally divided on each side. This is important, in order that the sap may flow equally to both. It will be observed, too, that no part of the vines is shaded. Every thing, indeed, is well ordered. The canes proceeding from the short spurs, *i* and *k*, in the middle of each vine, not only serve to keep up a continuous root action when the vines are pinched, but they are always ready to supply the place of the old arms in case of accident. They are safety valves in more senses than one, and form a very important feature in this system of training.

Let us now turn to the pruning, as shown

already completed in the illustration. The two middle canes (*i* and *k*) are cut down to a single eye each. On each side of these are three spurs marked *o*; these occupy the places of the canes that were cut down last year to three buds. The reader will remember that the spurs last season were formed of three buds, the top and lowest only being retained, and the middle one rubbed out. The present spurs are formed from the cane that proceeded from the lowest bud, all the rest being cut off, as indicated in the engraving. The process consists in cutting off the old spur at the base, and then pruning the lowest shoot to three buds. In our next we shall describe this process minutely, and illustrate it with drawings nearly of the natural size. On the ends of the arms are five spurs marked *c*. These are formed of the canes that proceeded from the five buds left at the last pruning, when the arms were extended and completed; these canes being now cut to three buds, as before described. The arms are now completed with spurs. They will be reproduced each season in the manner already indicated, but which will be more minutely described in our next, since it is one of those interesting points in grape culture over which we may profitably pause for a while.

The vine being pruned, let us suppose it has passed the winter, and is ready for the growth of the fifth year. The vines having been tied in their places, the first operation will be plowing. This must be simple surface plowing, so as not to cut up the roots. Weeds must be kept down by the occasional use of the horse hoe. The ground must be kept clean and mellow, as before explained. If the reader has paid attention to what has already been said on the subject, he will understand fully what is now to be done. We will therefore turn from the soil to the vine. The operations are chiefly those heretofore described. From each of the spurs, *i* and *k*, a single shoot is to be taken, and allowed to grow unchecked, except that the laterals are to be pinched in. The middle buds on the spurs *o* and *c* are to be rubbed out, and the top and lower buds only left to grow. The fruit on the lower shoot is to be removed. The shoots from these spurs must all be stopped at the third wire, and the laterals pinched in. In other respects, the treatment is the same as heretofore directed.

Next let us see how much fruit may be expected during the fifth year. The canes from *i* and *k* will yield three bunches each, as will also the canes from the six spurs marked *o*. The canes from the ten spurs, *c*, should not carry more than two bunches each. Next year they may be allowed to bear three. Thus we have, altogether, *forty-four* bunches of grapes, which ought to weigh half a pound each; indeed, Isabella, Catawba, Concord, &c., ought to average more than this. We have, with this average, twenty-two pounds of grapes from a cane eight feet long. This will compare favorably with any *eight feet* of cane in the grapery; and there is no doubt about it. The vines next year will yield three bunches from each cane, which will probably give a sum total of twenty-seven pounds of grapes to each vine. The weight of the bunches, of course, will depend, not only upon good culture, but somewhat upon the kind of grape. There are few good grapes, however, that will not produce bunches of half a pound weight. We have some that will give bunches weighing nearly a pound each. We allude to the weight of fruit at this time simply to give the reader some idea of what may be anticipated in the yield of fruit from each vine under favorable circumstances. We do not, however, always allow three bunches to each shoot; in this we are governed a good deal by the kind of vine and its vigor, as will be fully explained hereafter. Where only two are left, their size is materially enhanced. Good treatment, of course, must be given to realize these results.


A
B
C
D
D
W
W
W
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W

Fig. 9.—Front Elevation.

Fig. 10.—Side Elevation.

COUNTRY HOMES.—DESIGN NO. 8.

BY GEO. E. WOODWARD, ARCHITECT, NO. 37 PARK ROW, NEW YORK.

This design is similar, in some respects, to design No. 2, and gives, perhaps, the most compact arrangement of rooms for a building having so irregular an outline. Exteriorly considered, there is much to be admired in variety and light and shadow, the different elevations being entirely unlike each other, and affording a constant change from every point of view; an object, we think, very much to be desired in cottage architecture, and when well managed never fails to make a pleasing impression. A high, bold appearance, without the overhanging eaves or depth of shadow, is not suitable for a country house; a feeling is created that something is wanting to make up the accessories of an agreeable habitation.

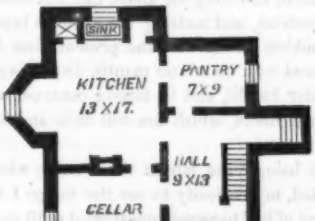

Fig. 11.—Basement Plan.

In this plan, (Fig. 11.) the kitchen is in the basement, convenient to the cellar, and with a good pantry attached to it. It is put there for the purpose of economizing in the construction. Our own preference is to put the kitchen in a well-ventilated wing on a level with the main floor, and thus avoid, as much as possible, the necessity of running up and down stairs. This can be done at any future time when desired, as, indeed, can any addition of other rooms be made to meet the wants of an increasing family. A dumb waiter connects the kitchen with the dining room, and thus saves many steps.

The first floor (Fig. 12) gives parlor,

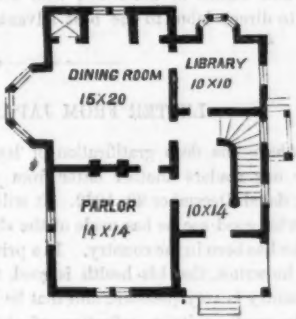

Fig. 12.—First Floor.

dining room, and a library, with a roomy vestibule, and a side door or private entrance, and supplies all the wants of a small family. The library might be used for a bed room. On the second floor (Fig. 13) are 3 bed rooms with closets.

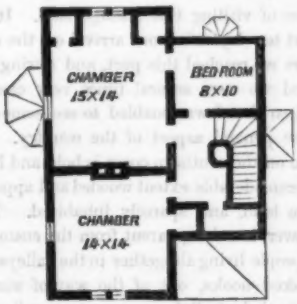

Fig. 13.—Second Floor.

The engravings are intended to tell their own story as far as possible, and but little explanation is necessary to make them fully comprehensible. In the matter of cost, one can hardly give a price that is reliable; the

enormous advance in some building materials and slight advance in others disarrange all old standards of estimating. Localities, of course, have much to do with the cost; yet, above all others, the business management must be considered. A good manager, thoroughly familiar with the qualities and values of materials, who knows how to direct labor to the best advantage, will execute work at a less cost than one who undertakes his own building without a previous training. If, however, the question were directly put to us, we should answer, that we will contract to substantially erect and completely finish such a house for the sum of $1,400, where materials and labor do not exceed a fair average of value.

LETTER FROM JAPAN, FROM MR. THOMAS HOGG.

We have the deep gratification of laying before our readers another letter from Mr. Hogg, dated December 29, 1862. It will be seen what good use he has made of the short time he has been in the country. In a private letter he writes, that his health is good, that the country is very pleasant, and that he has already made quite a collection of choice things. But the reader will be anxious to see the letter, and we give it without further remark.

KANAGAWA, JAPAN, *Dec.* 29, 1862.

P. B. MEAD, Esq.—*Dear Sir*,—After many delays and the ending of a long sea-voyage, you may readily imagine the delight I experienced on my arrival here on the 22d of August, and the realization of long-cherished hopes of visiting this strange land. It was about ten days after our arrival on the coast before we reached this port, and during that period we were several times very close to land, so that I was enabled to see somewhat of the general aspect of the country. The shore on the southern coast is bold and hilly, to a considerable extent wooded and apparent waste land, and sparsely inhabited. This, however, is only apparent from the custom of the people living altogether in the valleys and sheltered nooks, out of the way of storms, which their frail houses can not well withstand.

The sides of the hills are seldom or never cultivated with cereal or vegetable crops, but are chiefly planted with timber trees, which are carefully cared for by the laws of the country. As we proceeded north the hills became less abrupt until we reached the coast of a large extent of level country. Approaching the gulf at Yedo, the country again becomes hilly, and the volcano island at its mouth has an elevation of about 4,000 feet. The shores of the bay presented an exceedingly attractive appearance on the delightful summer evening we sailed up. The great center of attraction was Fusi-yama, with several streaks of last year's snow on its summit, towering far above the surrounding mountains, and inviting the explorer into its forbidden paths. At the present time it is covered with its winter mantle, displaying its greater height, and in strong contrast with its neighbors, which are still dark and somber.

It being quite late in the evening when I landed, my curiosity to see the things I had heard of had to remain unsatisfied until morning. You may be sure it was not long after I arose, before I was making a tour of inspection in the adjoining garden. At the kind invitation of a friend connected with the leading American house here, I made their house my home for a while. Attached to the dwelling they have a garden filled with a large collection of Japanese rarities, some of which I readily recognized from the published descriptions of Fortune's and Veitch's collections How I wished I could transport as they stood some of the specimens of Thujiopsis dolabrata, Retinosporas, Junipers, Abies, Pinus, Osmanthus, Podocarpus, &c. Thujiopsis dolabrata has been pronounced, and perhaps justly, the finest evergreen in the country; but the Retinospora may fairly claim a portion of the honor accorded to it. There are 8 or 10

species and varieties of it, and if they prove hardy with you, they will be invaluable acquisitions. A weeping variety, similar in appearance to the weeping Chinese Arbor Vitæ, but much finer, is one of the most beautiful pendulous trees I ever saw.

The tendency of foliage in this country to assume a variegated character is one of the peculiarities well known to you from the number you already have in cultivation, that have been introduced from here. I was surprised at finding, in addition to those I was familiar with, so many others, not only native plants, but those from other countries. I have made quite a little collection, in hopes of soon having a favorable opportunity of sending them home. Among them are variegated Osmanthus, Podocarpus, 2 or 3 varieties, Eurya latifolia, 3 varieties, (fine,) Camellia sasanqua, Juniperus, 2 or 3 varieties, Cryptomeria, Saxifraga sarmentosa, (a beauty,) Kadsura Japonica, Rhyncospermum, Gardenia radicans, (fine,) Thujiopsis dolabrata, Kerria Japonica, Retinosporas, Farfugium grande, (silver edged,) Cleyera Japonica, Salisburia, Viburnum nitidum, Serissa fœtida, Ligustrum, and others. I have also made a small collection of about a dozen sorts of Japan Maples. How many species there are among them I am unable to say; probably 3 or 4, and the remainder only varieties. If they too are hardy with you, they will also prove valuable additions to your ornamental lawn trees.

The Cryptomeria is the most extensively planted tree for timber in the country, and is used for a variety of purposes in building. Wherever you go you will find plantations of it in various stages of growth. It is usually felled when from 6 to 12 inches square. The wood most frequently used in manufacturing fine furniture, fancy boxes, door panels, and wherever solid work is required, is the KI-A-KI, a species of Planera. Wide planks of it are brought to market, and the wood, when polished, has a beautiful grain, and is valuable for the purposes for which it is used. Pinus densiflorus and P. Massoniana supply the largest timber, and are extensively used for all sorts of heavy work.

The HI-NO-KI, or Retinospora obtusa, is also much used for light work. The wood is white and very tough; long shavings taken from it, and dyed various colors, are manufactured into beautiful mats, about 6 feet long and 3 or 4 wide. They are exceeedingly pliable and soft; more so than Chinese matting used for floor coverings.

I have only seen the Sciadopitys in a cultivated state. There is a beautiful specimen of it in a temple yard a few miles from Kanagawa, which, for perfect symmetry of form, is equal to any thing among Conifera I ever beheld. It is much cultivated by the Japanese gardeners, and deserves all that was said in its praise in the "*Gardener's Chronicle.*"

The Cryptomeria is hardly behind either of the others for beauty, and is certainly one of the finest evergreens, and I can not but regret its want of hardihood with you. Its dense, dark foliage is very conspicuous, though having in large masses rather too somber an appearance. There are several varieties of it, some of them quite dwarf, and they will take a place with the dwarf Spruces in ornamental gardening. Neither Thujiopsis dolabrata nor Abies firma is found in any considerable quantity near here, yet there must be large trees of them not very distant, as well as of the Sciadopitys, as I have had no difficulty in procuring seeds of them all. Abies firma, or A. bifida, which is the same thing in a young state, will undoubtedly prove hardy, as I have procured seeds of it, with other Conifera, from Fusi-yama. The cones of it vary according to the locality it comes from; those from the mountains being short and almost smooth, while those from warmer sections are long, with prominent spur-like appendages to the scales.

The Camellia, with its bright shining foliage, stands pre-eminent among broad-leaved evergreens. Its favorite place seems to be gravelly banks of water courses, and there it usually attains its greatest size. This, however, is not always the case, as the largest single specimen of it I have seen stands on high ground on the margin of a pine wood, away from the water, and a noble specimen it is,

of the dimensions of a respectable sized apple tree. Camellia sasanqua has just passed flowering, and seeing it in bloom so early has impressed me that much remains to be done by the skilful horticulturist in producing a race of early flowering double varieties, of which this species will be the parent. You are well acquainted with the double sort already in cultivation, the flowers of which are small, but the single ones are large flowered.

In my walks over the surrounding hills I frequently come across Pittosporum tobira, covered with the Aphis that attacks it and Oleanders with us, when crowded and confined in green-houses. The leaves, too, are covered with dust adhering to the sticky substance with which they are covered in the same manner. The same also with the black thrip that attacks Azaleas under similar circumstances, and I have no doubt both nuisances were imported with the plants.

Chinese Azaleas are planted in quantities near temples, chiefly bordering the main entrance walk, and appear to be mostly of the A. lateritia style. I expect a treat next spring when they are in flower, and I hope to pick up some new varieties.

Not least among novelties are the variegated Selaginellas. How to describe them to give you a proper idea of their peculiar beauty is almost impossible. Imagine the changeable hues of Lycopodium cæsium to be orange, yellow, and crimson, and you will form some conception of their colors; others, again, have their leaves tipped with white in various ways, pink, and different shades of green. Altogether, they are horticultural gems; the more you examine them the more they are appreciated. In addition to these, I have met with variegated (gold and silver striped) Orchids. I am unable to say what they are. They have the growth of Dendrobiums, however, and I think possibly they belong to that genus. I have not seen them in flower. Also a fine showy fall flowering Hibiscus, similar, if not identical with our H. palustris, with double flowers. It is quite showy, and would make a fine shrubbery plant.

Although many foreign plants are cultivated, strange to say, I have not seen a Geranium of any kind, either scarlet or show, or a Verbena. The old China Rose is grown, and one or two sorts of running roses, which, from their general appearance, and from description, I think must be new; they resemble the Noisettes, and perhaps may prove to be such.

My residence is so recent, and the field so extensive, I can only claim to have had a glimpse of what surrounds me, and shall not pretend to embody in one letter all that is to be said and seen. With the hope that my imperfect descriptions may interest some of your readers as well as yourself,

I am yours, &c.,

T. H.

A TWIN CAMELLIA.

BY THE EDITOR.

Nature sometimes presents us with examples of very singular departures from her normal condition, such as variegated foliage, drooping branches, inverted flowers, &c. Mr. Weir, of Bay Ridge, L. I., has sent us a very beautiful specimen of this kind, in the shape of a twin Camellia. Thinking many of our readers would be interested in it, we have had prepared a very good portrait of it. Fig. 1 is a front view of it. Fig. 2 is a back view. By referring to Fig. 2, it will be seen that there is but one bud. In this case, the calyx contained two germs, which, on opening, formed two perfect flowers. The petals forming the back or base, however, are so disposed that the whole has the appearance of *three* flowers, that at the base being perfect in every respect except the eye. Altogether, it is a very interesting and beautiful thing. The variety is the old Alba Plena, or Double White. We have seen other specimens of twin flowers of this camellia, but none so perfect and interesting as the one before us.

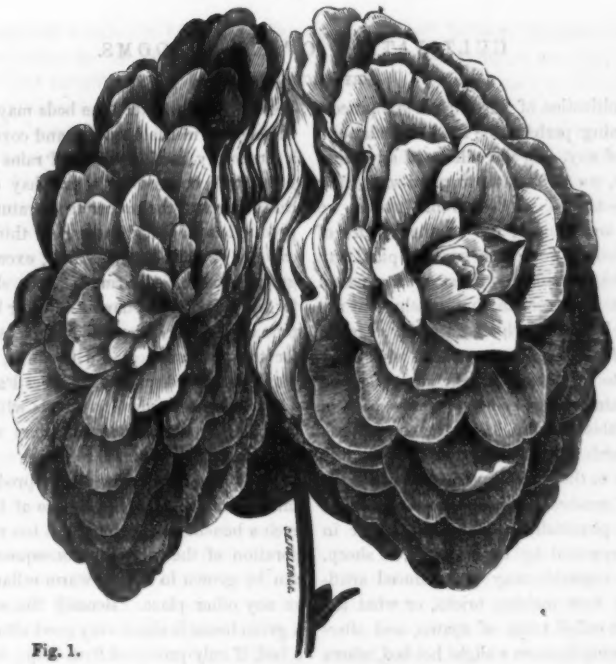

Fig. 1.

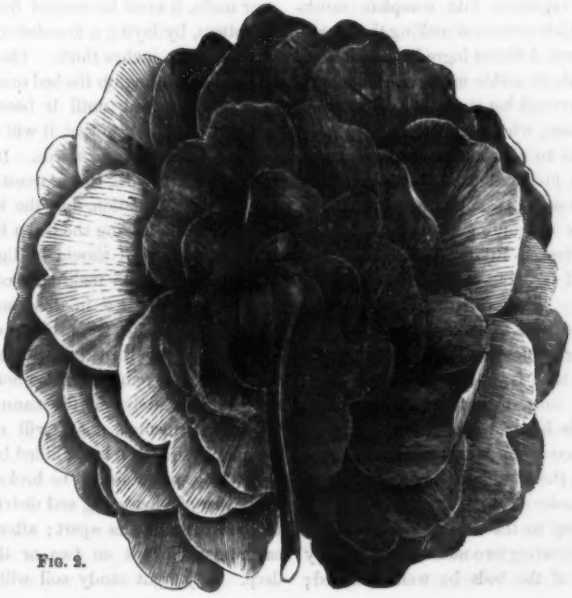

Fig. 2.

CULTIVATION OF MUSHROOMS.

BY RICHMOND.

The cultivation of mushrooms is a process in gardening perhaps the most singular and curious of any. In the culture of any other vegetable, we either sow or plant something material—a seed, slip, or root—which we both see and handle; but in the culture of the mushroom, we neither sow nor plant any seed which is visible, at least to the naked eye. Yet it is certain that mushrooms are produced by seeds, which naturally vegetate in the field, at certain seasons, and which may be made to vegetate artificially at any season by a certain process, and by a composition in which stable manure forms the chief ingredient, which shows that animal matter is necessary to the vegetation of the seeds, or spawn of mushrooms. Hence we find them produced plentifully in old pastures, or in places frequented by horses, cows, or sheep. But this vegetable may be produced artificially, by first making bricks, or what are sometimes called cakes of spawn, and afterwards placing them on a slight hot bed, where the spawn vegetates into complete mushrooms, in which process of making the spawn, as it is termed, different ingredients are used, but chiefly short stable manure. This business of spawn-making is generally performed by nurserymen, who manufacture it in large quantities, as an article of trade, and it can generally be procured from them, or of any of the seedsmen, at any season, which is preferable to attempting to make it by any one inexperienced in its manufacture, and which would be almost certain to result in failure.

The proper time to make the beds is early in September, which leaves seven months for production; that is, up to the 1st of June, after which time mushrooms produced in artificial beds become wormy very quickly, in consequence of the warm weather; but it is well worth the trouble and expense to form mushroom beds at any time through the winter and up to the 1st of March, as the produce, even during two months, will be very considerable, if the beds be well managed; besides, at the latter time beds may be made in sheds or in the open air, and covered with a temporary roof to keep off rains; and by being well covered with salt hay or straw, can be kept of the proper temperature for the production of mushrooms; a thing which can not be done during winter, except in the green-house or a warm cellar, or shed built for the purpose, and having a flue or hot water pipe in it. In Europe they have structures for the purpose, heated with a flue, the temperature being kept at 50 degrees Fahrenheit. They are also grown in sheds without fire heat during the severest winters there, by being kept well covered, as above.

Light is not necessary for the production of this vegetable; and the absence of it may be even a benefit, as preventing a too rapid evaporation of the surface. Consequently, they can be grown in a dark warm cellar as well as any other place. Beneath the staging of a green-house is also a very good situation for a bed, if only protected from drip; but wherever made, it must be secured from moisture at bottom, by laying a foundation of cinders or gravel six inches thick. The manure to be used in making up the bed must have been frequently turned, until it becomes of the proper sweetness; so that it will not burn or become very hot afterwards. It is then in order to begin with, the coarsest part being laid on the foundation, and the bed finished with the finest, leaving the bed a little highest in the middle. All should be lightly beaten with the fork, as in making a common hot-bed. It may be left in this condition for a few days, before inserting the spawn. Examine the bed by thrusting the hand five or six inches deep; and if not too hot, insert the spawn immediately. If the manure has been properly fermented, there will not be any danger of the spawn being killed by too much heat. The spawn should be broken in pieces of the size of a hen's egg, and distributed over the bed eight inches apart; after which the earth may be put on two or three inches deep. Any light sandy soil will answer, it

being immaterial whether it be rich or not, its only use being for the spawn to run in. No water need be given at present, or until the spawn begins to run, which may be ascertained by putting the hand a few inches deep in the soil, and examining what you bring up. If the spawn be working, you will observe the small threads of it; but generally you will be able to judge of its success by many spurious fungi appearing on the surface. Now is the proper time to give the first watering, which must be thorough. Cold water should never be applied to mushroom beds; it ought always to be rather warmer than the temperature of the bed. It is usual to cover the beds lightly with hay, as it preserves the surface in a genial condition for the full development of this species of vegetable. If it happen that no mushrooms are produced in six weeks, examine the bed. If the spawn has not spread, it must be fresh spawned, if in the green-house, or where the temperature is sufficient; but if in the open air, new beds must be made. There is a means by which beds, when they have stopped bearing, have again been put into active bearing. This is done by inserting a crate or large box perforated at the forming of the bed, which can be emptied of its contents, and filled with fresh heating materials.

They can also be grown in boxes, two or three being brought in every two weeks, and placed on the flue or hot water pipe of a green-house. A nice supply can thus be got. For this purpose, the shortest materials from the stable should be used, and so thoroughly dried as not to ferment when put in the boxes, which should be managed as above, with the exception that more water may be necessary. But the best process for obtaining mushrooms, that I know of, consists in making up a bed of alternate layers of manure and earth, the manure to remain unbroken, unfermented, and to be thoroughly dried. This bed should be about two feet or more in height, and so attended to, that no fermentation shall arise at any time. When completed, it should be spawned in the same manner as other beds, and will produce twice the quantity of mushrooms as an ordinary bed, and continue longer in bearing. It must, of course, be made in a warm place, as without some little warmth it would be likely to remain an inert mass for several months.

Mushroom beds are subject to many mishaps, usually from excess of moistness or drought. The only safe way is to avoid all extremes. In gathering the crop during winter, it is very judicious to cut them off carefully with a sharp knife; but during spring and early in summer it is better to twist them carefully off, for the reason that any old stumps left are certain to breed worms, which infest mushrooms as the season gets hot. During winter no such trouble will arise; and by cutting the mushrooms, the many small ones at their base are allowed to come to maturity. I think salt water applied to the beds occasionally might act as a preventive to worms. I do not think it would be injurious to the crop, at any rate; and my reason for saying so is, that I saw a quantity of mushrooms growing on a salt marsh last September. I have also eaten of them; so have many others in my neighborhood. If a small portion of salt were used in forming the beds, there would be much less need of using water. I have tried a weak solution of salt and water on a part of a mushroom bed now in bearing, but sufficient time has not elapsed to fully test its utility.

[The "proof of a pudding is in the eating;" and the proof of "Richmond's" pudding consists in a basket of remarkably fine mushrooms left at our room with this article. They would be considered fine specimens at any season. They made a delicious "broil." The artificial culture or forcing of mushrooms is by no means common among us. We think it might be made a source of profit, as our large city hotels would no doubt buy them freely in the winter, and pay a liberal price for them. They can be grown with less trouble and expense than some other forced crops, and we think would pay quite as well. "Richmond's" method is one of the simplest, and the results show it to be excellent. We have had mushrooms come up quite freely in early spring in newly formed grape borders. In

one instance, the border was made up largely of the top spit of a reclaimed swamp, the muck of which was as black as night and soft as a piece of velvet. After having been drained, it was laid down to grass, and pastured. The "top spit" of a portion of this was used in the compost for the grape border; and in the following spring this border (inside the house) produced a plentiful supply of very fine mushrooms. Lest the opponents of muck should jump to sudden conclusions, we will add here, that that border has continued up to the present time to produce as good wood and good fruit as we have ever seen, with a marked freedom from mildew or blight in any form whatever.—In regard to salt, we should advise it to be used sparingly as an experiment, the application to be made before the spawn begins to run. To make the experiment satisfactory, however, the salt should be applied at times in different quantities, and the results noted.—Ed.

TREES BY THE WAYSIDE.

BY W. BACON, RICHMOND, MASS.

In one of our pleasant villages, in Western Massachusetts, a Rural Improvement Society was started, a few years ago, under very favorable circumstances. From some cause, not fully understood by us, however, a division of feeling sprung up in this association, which led to a division of action, and the seceding party went to work in earnest, to show the "*old line*," as they termed it, that they were capable of doing something pretty fair. Accordingly, one of their first acts was to set apart the *first of May* for transplanting trees by the wayside. As their village was already ornamented with beautiful avenues of trees, they had nothing to do at home, and a highway was selected as the field of their enterprise quite beyond the precinct of village limits, and a mile of naked road was, as it were by magic, transformed into a beautiful avenue. The trees were small, to be sure, and, of course, not very shady to begin with; but we saw them last fall, just as their foliage was passing into the sere and yellow leaf, and their vigor gave us assurance that in due time they would become "tall old trees," with their branches interlacing in the same kind spirit that pervaded those who took them from the forest, and gave them a local habitation amid the more busy haunts of men, where their symmetrical forms will be subjects of admiration, and their umbrageous shades will yield refreshing coolness amid the intensity of summer's heat to the successive generations who may seek quiet and comfort beneath them.

Similar associations can not be too numerously multiplied in our country. Rural improvements open a field of labor everywhere, and until this field is occupied and brought into proper shape, we have need of such labors. By their performance the country is made more wealthy; the actual value of real estate will ever stand the highest, where the people do the most to beautify and adorn it.

It appears very strange that such associations do not spring up in every town, and show their good effects. It certainly is not because they are expensive. A few hours in a year, devoted to the object, is all the tax that is necessary. Let the plan be adopted, and the day set apart for each one to meet and work, and this is all the necessary preliminary. Who would not feel happier, after spending a day with his townsmen in such an employment? Yea, doubly happier—happier for the noble work accomplished, and happier for the social intercourse with his friends and neighbors in bringing about that accomplishment.

But we have digressed from our first intentions in penning this article. We commenced with a view of giving our ideas of trees suitable for roadside planting; and here we remark, that we know of no tree unsuita-

ble for this object, where soil and locality will favor its growth. Therefore, where rural beauty is the object, as large a variety as circumstances will permit, should be introduced; and, in introducing, those kinds presenting the greatest contrast should be brought in juxtaposition. The Poplars are among the first to put on the regal attire of spring, while the Chestnut and the Oak stretch their bare arms to the tempest almost until its last echoes have died in the stillness of summer. Yet these last retain their foliage in beauty long after the leaf of the Aspen has ceased to flutter in the breezes of autumn, and has come down to mingle with the dust that fed them. The Maple's symmetrical head, formed as true as though it had received its finishing from the chisel of the turner, is a beautiful contrast to the broad top of the Elm. The Beech and the Birch, though of different dispositions, make excellent neighbors. The Tulip tree and the Ash may occupy neighboring positions to great advantage; indeed, we may go through the realm of Sylva, and find very pleasant contrasts and counterparts that are worth caring for in ornamenting our wayssides. Evergreen trees should be occasionally thrown in, not only for the contrast, but for their beauty. The Pine, the Fir, and the much-abused but elegant Hemlock, are, at proper seasons, transplanted with as little risk as the Maple and Elm, and in their proper soils are of as thrifty and symmetrical growth. It is no objection, but rather an appreciable quality, that the summer breeze sighs and the winter winds howl through their branches. To us it is music, sweet and solemn, whether softened to chord with the note of birds by the heat of harvest, or rendered harsh by Borean eloquence in the night of winter's year.

But a little more labor and care will be necessary in a sweet intermingling of variety, than is necessary where all the trees are of the same variety; and the after effect, where the former course is adopted, will in each successive year, and in all years, more than counterbalance it.

Another objection to the usual mode of setting trees is, that they are allowed to grow too thick. In the early years of their growth, this may not be realized. Indeed, the sooner their tops will shade the ground, the more rapid will be their growth. But, where they are set so thick as to favor this object, calculation should be made to cut out and remove at least every other tree. They must have room in order to a perfect development; and this development, varying in species and varieties, is an essentive part of their beauty.

[We have known of many instances of divisions in societies, but this, we think, is the first instance we have heard of in which positive good resulted from it. It appears quite as strange to us as it does to Mr. Bacon, that rural improvement societies are not very much more common than they are. We understand perfectly well why horticultural societies do not flourish in most of our large cities, but we do not understand so well, why similar associations are not common among our rural population. They might do an incalculable amount of good in beautifying the country and elevating the tone of social life. We commend Mr. Bacon's remarks to the attention of all our readers.—Ed.]

LANDSCAPE GARDENING.

BY J.

Landscape Gardening is defined as being the art of appropriating or securing all that is useful and beautiful of which a given place is capable of furnishing, and of arranging its materials or natural advantages so as to best effect these objects. We have in this formula a foundation for any attempts we may make in this art. In working out these ideas, many things present themselves, requiring a full comprehension of what o

the beautiful may be secured and preserved, and what blemishes may be improved or screened from view. Those arrangements of roads and walks that secure directness and easy approach to buildings and the various divisions of the ground, and command the best views in connection with them, in a manner that is most pleasing to the eye, and which are best adapted to the prevailing ground surface, are among its first requirements. Such appropriation and arrangement as shall shut off unsightly objects, and open views that are pleasing, adapting such forms and proportions as will harmonize with the extent and prevailing expression of the place, and the securing variety of form and unity of design, while it avoids any thing that will injure the obtaining the greatest beauty of which the place may be capable, are all equally necessary to carry out these objects. These various requirements can not be obtained by mere imitation,' as in copying from Nature or the works of others. Each place has peculiarities of its own. Location, exposure, soil, surface, surrounding objects, extent, and convenience, present a variety of claims that can not be applied with equal force to any two places. Ideas and suggestions may be acquired from many sources, but the skilled landscape gardener will avoid copying the works of others, and rely mainly upon his own resources in applying suggestions which are appropriate to the ground he may attempt to improve. Much has been written upon landscape gardening that tends to make the subject intricate and obscure, rather than to enlighten and improve in the art.

Like other arts, in its working it demands experience, taste, cultivation, education, and a great variety of resources to catch and appropriate the prevailing expression of each particular place, so as to bring out its best qualities, give the greatest variety of form, and conceal what is repulsive to sight.

Many who write or compile the ideas of others so as to make a pleasant article to read, fail utterly in giving such instructions as are useful in the working; and some we have known who, in attempting to work out what they have written, have fallen into inexcusable errors. We therefore believe mere theory will not make a good landscape gardener. It needs not only the power of a clear perception of the capabilities and wants of each special locality, and such knowledge and resources as are requisite to the accomplishment of certain results, but also the genius and skill to work out these desirable ideas.

A person may be very enthusiastic in admiring the beauties of Nature and Art, but wholly incapable of imitating the one or the other; as one may admire a fine painting or eloquent speaking, but himself be unable to accomplish either. Most beginners who attempt any thing in the way of rural adornment generally begin working with simple straight lines, or with geometrical circles and figures, and by copying and repeating the work of others. There is perhaps in every one a constant tendency to go back to these formal lines, and to repeat the same forms and objects. The old straight avenues, the planting of trees at equal distances from each other along the roads and walks, the balancing of a curve, tree, or other object against another, the straight slopes, the level surfaces, the perpendicular terrace, the straight and stiff lines along the sides of curved walks, and the sharp and harsh outlines of buildings and trees, are among the things to be seen almost every where. These are all inconsistent with the modern popular style of landscape gardening.

One of the peculiar characteristics of this style is its easy flowing and soft waving lines; this forms one of its fundamental and pervading features; and to be consistent, these should be carried into all its various objects and workings. All surfaces of the earth, whether flat or precipitous, and outlines of other objects, should be made to conform to these lines, and thus all be made to combine in producing a harmonious effect with each other. It has been said, that in Landscape Gardening the expression of design should be such as to point it out as a

work of Art, otherwise it may be mistaken as a production of Nature, in which case it would lose its beauty of design. This is given as a reason for regular forms, flat surfaces, and uniform divisions. The proposition, though apparently true at first sight, is not so in result. The preserving in most cases nearly the natural surface of the ground, and smoothing the rough surfaces, with the nice working of curved lines and the introduction of pleasing forms and divisions, at once stamp it as the work of Art, and sufficiently distinguish it from the productions of Nature, while it has the advantage of employing those lines and forms that are the most beautiful. Where great changes and new surfaces of a striking character are attempted, it often results in failure to accomplish the object sought. Much experience and art are required to make such changes satisfactory, and it is only under favorable circumstances that they can with profit be attempted. All roads and walks, therefore, in their direction, in the working of their edges, and forming of their surfaces, should have a pleasing curved outline. The grouping of trees should be done with reference to their sky line, and should be brought down to the lawn in easy and graceful curves. Lawn surfaces should be curving and undulating, and never a dead level or flat surface. The sharp outlines of buildings should be softened by the planting of trees, shrubs, and vines, thus forming and preserving beautiful lines by the skillful arrangement of various objects, and by ingenious covering of unsightly features, and the screening of straight and angular objects and boundaries.

These are among the chief features, it seems to us, that unite in forming those exquisite scenes we sometimes meet with, where the gifted landscape gardener has shown his genius and talent in making land pictures, which are a source of the highest pleasure to multitudes, and which are doing much for the education of this nation in the love of this beautiful art. And not least worthy of our gratitude are those gentlemen who liberally employ their abundant means in these works, and who open them freely to the enjoyment of others.

[Landscape Gardening may well and expressively be called the Art of Appropriation; and it is just as truly an art as Painting is; in its higher developments or manifestations it may very fitly be called twin-sister to it. The analogies between them are very striking. We would suggest that J. follow the subject up in this connection. It can be made very interesting, and he has presented good evidence that he has the ability to do it.—Ed.]

THE DELAWARE GRAPE.

(*See Frontispiece.*)

BY THE EDITOR.

It may be remembered, that in our early notices of the Delaware grape we predicted that bunches weighing half a pound or more would become quite common under good culture. This prediction was based upon experience with vines that had arrived to some degree of maturity under good treatment. What we had done, we confidently believed that a great many others could do. Our predictions are now being verified, and we are content. The time will come when the size of the Delaware will not be made a serious objection to it. We were anxious that our readers should have some evidence of this, and hence last fall we selected a bunch from the vineyard of Mr. Mace, at Newburgh. The one selected was not the largest in his vineyard, neither was it larger than bunches seen elsewhere; we consider it a fair representative bunch of the Delaware when well grown on matured wood, and expect to see it oftentimes excelled by Mr. Mace and others.

The bunch was placed in the hands of Mr. Tice, a well-known artist of Newburgh. He is distinguished as a painter of fruits, but in this portrait of the Delaware he has excelled all his former works that we have seen. The portrait is faithful in size of berry and bunch, and in every other particular. As a work of art, it is a gem, starting out from the canvas like the luscious fruit itself. Mr. Tice is a master of color. Those who delight in a finished painting in oil, can, in this portrait, have their tastes fully gratified.

Our next effort was directed to its execution on wood: In this we have measurably succeeded. The size and form of berry and bunch are accurately given; but color, play of light and shade, rotundity, are difficult matters to render successfully with printer's ink. We have watched it carefully, altered it repeatedly, and are still doing so at the time of writing. What it will finally be we can not say positively, but we hope the printer will make it what we desire it should be. If it should not prove to be satisfactory, we shall have it done over.

It was found necessary, on account of the size of our page, to curtail the size, and otherwise mar the truthfulness of the foliage, and use the leaf simply as a background; but, in order to give the reader an idea of the true form of the leaf, we have had executed an engraving on a small scale, which is here given. It is beautifully and truthfully done. The wood and leaf are executed with much spirit, and we think will be much liked.

The Delaware has so often been described that it is not necessary to repeat a description here. Our opinion remains unchanged, that, for the table and for wine, it is the best grape now before the public. Others no doubt will, and we hope may, arise to dispute its supremacy, but we doubt whether it will ever be supplanted.

A SHORT TALK ABOUT STRAWBERRIES.

BY H. MORGAN BROWN, RAVENNA, OHIO.

The beautiful and interesting science of Pomology derives many of its most charming features from the heartfelt and soul-thrilling delight lent by the appearance of our early small fruits, and, unlike the usual manner of supplying our eyes and palates in carefully arranged degrees of improving excellence, munificent Nature at once gives us her *perfection* in the Strawberry.

Who ever heard of a person who was not ond of strawberries? Indeed, tastes most epicurean may here be *perfectly satisfied* in this most luscious fruit. For the amateur in fruit culture, there is nothing which he may cultivate with so much delight; for the million, nothing which will so satisfactorily reward the slight labor bestowed upon it. The Strawberry ranks preëminent among all small fruits. It is the most promotive of health; the earliest, coming as it does before all other fruits; while its exceeding productiveness, at the same time its remarkable ease of production, renders it of incalculable value to the country.

The greatest impediment to the cultivation of the strawberry has been its *supposed* incapability to resist the severity of our seasons, and particularly the spring frosts. In England, and some parts of Continental Europe, it is treated with the care due only to a hot-house plant, and a crop of fruit expected under no other conditions. But the strawberry is not a tender exotic; but, instead, a plant capable of thriving under more conditions than perhaps any other; for while we find it flourishing in the far northern regions of both continents, in the greatest plenitude, even to the extermination of the native grasses, we may at least give it the character of extreme hardiness; and all experienced cultivators will agree with me in saying, that failures in the abundant production of fruit have been due solely to an ignorance of its sexual character. But scientific strawberry growing is now pretty generally understood by the masses of "Uncle Sam's fraternity," particularly by all those who avail themselves of the ready-furnished information supplied by the agricultural and horticultural papers; and the rest—well, here let me say, woe betide that man, who, commencing in operations of this kind, refuses to avail himself of the invaluable aid of a good horticultural paper or magazine. *He* certainly *deserves* failure; and by a *kind* ruling of *intuitive Providence* he will most surely "get it." To all such, I would say, subscribe for the HORTICULTURIST, or some other journal of its class; *pay for it*, and *read* it. But be *very* particular to comply with the *second* above request, as *that* will please the Editor, and there is no telling what untold blessings will follow. Then thank your *rising* stars that you live in the age of progress, and that you are growing wiser. But I wander.

With regard to the soil best suited to the strawberry, there is much variance of opinion. In general, any soil which will grow good corn is suitable, with some exceptions. My own observation and experience in the extensive cultivation of this plant, point me most conclusively to the fact, that *unmanured* natural soils, of but moderate fertility, contain the requisite elements for the production of the largest amount of fruit of the finest quality. Ground which has been occupied by hoed crops for two or more years after manuring, will be found to serve the purpose nearly as well, if attention is given to thorough tillage before setting, and the same be not *too* much exhausted. But high manuring will never answer in the field culture of the strawberry, and more so with green manure; for in *either* case, the *green* element will be produced in a mass of rampant vegetation, at the *expense*, if not the actual *suppression* of the object sought—the *fruit*. Still, some varieties will be found to differ greatly in their feeding; some requiring more enriching elements than others.

I consider spring planting preferable, and for many good reasons. In planting in the fall of the year, it is necessary to set quite early, which entails much labor in watering and protecting the plants from the burning sun, in order to insure a permanent rooting before winter; and even with all due care, many plants will be lost. By planting in the spring, roots are formed at once, as it is their natural tendency at this season of the year, and the plants will begin to grow immediately. At the close of the following season, the stools will be found to be stouter than those of the previous fall's planting. In either case, the first crop of fruit (if allowed to fruit at all) will be very nearly the same; those planted in March and April producing some fruit in June of the same year.

Plant in straight rows, two and a half feet apart, setting the plants one foot apart in the row. Keep the ground clean of weeds by frequent hoeing, taking care not to disturb the roots, and remove the runners as many as four times after the fruiting season is over. This operation will not be found necessary before the ripening of the fruit, unless the soil be too highly manured; in which case the injunction will be found to be quite unnecessary with some varieties of this berry, as there will be little or no fruit to ripen.

The *common* mode of growing strawber-

ries is to allow the runners to mass together, overrunning the ground; and as, in this case, hoeing is out of the question, the *weeds* are generally mowed down with the scythe. This I term the *Lazy System*. It brings but a limited amount of small fruit, and consequently but little profit. A vast improvement upon this last will be found in the method of ridging your prepared ground in rows, lightly, by the plow, setting the plants on the apex of this ridge, and filling the spaces between rows deeply with a mulching of spent tan-bark or saw-dust. The after labor will consist only in picking the fruit.

Of the relative value of varieties of strawberries, it is somewhat difficult to speak with accuracy, since the same variety is rarely found of like habit in distant places. A kind may be noticed to be exceedingly productive at one place, while at a distance of a few hundred miles, it will be found quite the opposite in all respects; although it may be equally well fertilized in both cases. This appears to be particularly true of the Triomphe de Gand, a variety of great value in the Middle and Western States, while in many places near the Atlantic coast it sustains but a poor reputation. The Wilson's Albany is undoubtedly the most profitable variety for extensive planting in the West, as it is by far the most productive of all strawberries. It is but of medium quality, and quite acid until very ripe, when it will compare favorably with the best flavored sorts. It also combines great firmness and weight, which for canning and preserving purposes is indispensable. But *quality* is hardly noticed in the poorly supplied markets of the West, where any thing called strawberry is eagerly sought. The "Wilson" is every where enormously productive; yielding at least one-third more fruit than any other well-tested variety. Of nearly, or quite equal value to the Wilson is the Triomphe de Gand, which, like the former, is a hermaphrodite, or perfect variety. The Triomphe de Gand, although far below the Wilson in point of productiveness, quite makes up the deficiency in its magnificent size and appearance, and its exceedingly fine flavor. This last assertion, I know, meets with some opposition; and for reasons before explained in this article. By report, that excellent pomologist, Hovey, lately remarked, that he "would as soon eat a *raw potato* as a Triomphe de Gand strawberry." This being so, I have simply to say, that friend Hovey must be EXQUISITELY, ay, DELICIOUSLY fond of raw potatoes.

In a list of new and desirable varieties, I would name, La Constante, Empress Eugenie, Lennig's White, Surprise, and Golden Seeded; while of the older standard sorts, the Chili species, the Hovey, Hooker, Welcome, Longworth's Prolific, Victoria, Scarlet Magnate, and McAvoy's Superior, can not well be dispensed with.

[Mr. Brown makes a suggestion once before brought to the reader's notice by a western correspondent; we allude to the field culture of Strawberries on ridges. Where the interval between the ridges is filled up with some light mulch that will not encourage the growth of weeds, there can be no doubt that a great saving of labor will be secured. It has been reported that Mr. Hovey said he would as soon eat a raw *turnip* (not a *potato*) as a Triomphe de Gand; but we may doubt whether he made use of such a comparison, since the case does not admit of it. Trollope's Victoria is a very good variety to force under glass, but there are few localities where it does well in the open air.—ED.]

THE LIQUID GRAFTING WAX AGAIN.

BY HORTICOLA.

About two years ago I communicated to the readers of the Horticulturist the method of preparing this very valuable composition. Having used it myself since that time, extensively and exclusively, I can recommend it with the greatest confidence, knowing that nobody will ever use any other wax after having tried this. The peach tree mentioned in my first article, although entirely girdled and deprived of its bark by the goats, so that not a particle of it was left on a space of four inches, has so fully recovered, that it bloomed profusely last spring; the wounds are overgrown by new layers of wood covered with bark, so that the traces of them can hardly be seen.

As the grafting season is approaching, I deem it important to call the attention of your readers to it again, especially the large number of new subscribers, who, of course, have had no opportunity of becoming acquainted with it. I have, besides, found that the quantity of alcohol must be increased. The proportions of the ingredients are as follows:

1 Pound of rosin.
5 Ounces of alcohol, ninety-five per cent.
1 Ounce of beef tallow.
1 Tablespoonful of spirits of turpentine.

The rosin is melted over a slow fire. It is then taken from the fire, the beef tallow added, and the whole well stirred with a *perfectly dry* stick, or a piece of wire. When cooled down a little, add the spirits of turpentine, and last the alcohol, in small quantities, stirring the mass constantly. Should the alcohol cool it down too much, so that a lump forms, warm it a little till it melts again. By adding the alcohol even in small quantities, the water contained in it will cause some effervescence. Keep it in a corked bottle, and lay it on in a very thin coat with a brush. If it is put on too thick, a crust will soon form on the surface, preventing the alcohol from evaporating, and consequently the mass from hardening.

In the recipe given formerly, much less alcohol was added. In a room sufficiently warmed, the wax must be of the consistency of molasses; the quantity of the alcohol may, therefore, be increased according to circumstances. It may be added by pouring it into the mass and stirring when liquid enough; otherwise it must be warmed by putting the bottle in hot or warm water, with the cork removed.

It is always ready for use, and never affected either by heat or cold, healing up all wounds hermetically. E. A Carriere, in his *Guide pratique du Jardinier multiplicateur*, says: "C'est une très belle découverte, un grand et véritable service rendu à l'horticulture."

[We are obliged to Horticola for calling our readers' attention to this composition again. As one of our correspondents expressed doubts whether a peach tree, barked to the extent described, could be healed over, we take occasion to say, that we saw the tree at the time, and have seen it several times since, and the facts are precisely as stated by Horticola. We again commend this grafting wax as the best thing of the kind that we have seen. We shall note the variation in the quantity of alcohol in making our next bottle. —Ed.]

ACTION OF FROST ON PLANTS.

BY PETER HENDERSON, JERSEY CITY, N. J.

Mr. Editor,—A good many years ago I gave my views on this subject to one of our agricultural journals. I was not then a reader of the Horticulturist, nor was I aware of the intelligent class among whom it circulates, or I certainly would have chosen the

better medium for "airing" my peculiar notions on this matter. But it will do no harm to do so once more, particularly as the continued experience of these years has still further tended to strengthen the belief which I have set up for myself in opposition to the great majority of my brethren.

If you ask the question, whether a plant is injured by frost alone, or by alternate freezing and thawing, nineteen gardeners out of twenty will reply, by alternate thawing and freezing.

So if you ask the question of so many weather-wise men, whether the moon's changes influence the weather, nineteen out of twenty will answer, most certainly they do. Yet a German Meteorological Society has just decided, after years of careful investigation, that the moon's changes have no influence whatever on the atmosphere! Now, if the majority of a community be in error—for we are all weather-wise to some extent—may not the majority of a class be in error?

My reasons for entertaining these peculiar notions I can most simply give, by instances occurring in the routine of practice in the vegetable and floral departments of Horticulture, in which I have been engaged for nearly sixteen years, on a scale extensive enough and varied enough to give experiment in this matter abundant scope.

A correct notion of the action of frost on plants is of vast importance, and, if my views are correct, there is no doubt whatever that there is a world of harm done by following the dictum, that the injury is done by thawing and freezing.

The instance that first called my attention to this matter, some fifteen years since, was a span-roofed green-house, facing north and south, (directly wrong, by-the-way) which we, for want of something better, had filled throughout with Stock-gillies. The green-house had no flue, but was tightly fitted with shutters on each side. During a spell of severe weather, when the thermometer marked 10° below zero, we found that the plants had got severely frozen in all parts of the house. On the *south* side the shutters were taken off daily, and the plants on that side were thawed out, or nearly so, each day, while on the *north* side the shutters were allowed to remain on. The plants remained frozen each succeeding night, adding to the intensity. Shortly mild weather succeeded, which thawed out those on the north side. The result was so marked that I never forgot it. On the south side, where the plants had been thawed out each day, nearly every plant was safe; while on the north, hardly a plant remained alive, after six days' continued freezing.

Again, not quite convinced by this lesson, the succeeding fall, on getting sashes made to cover our cabbage and lettuce, we decided, as a matter of economy, to try a number of shutters in lieu of sashes. Accordingly, we had a range of fifty sashes made parallel to a range covered by fifty shutters. The plants were duly covered by them on the appearance of cold weather, and air given every day, when the weather was mild enough to admit it, by removing the shutters and sashes completely from the plants. But many days occur during winter when this can not be done, when both had to remain on. Those under the sashes were *thawed out by the sun;* those under the shutters were, of course, shaded—remained frozen—only to be still more severely frozen the succeeding night. The result in spring was nearly the same as in the case of the Stock-gillies: those covered by the sashes were as fine as we have ever had them since; those under the shutters, a dead and decaying mass. This was our last attempt at covering cabbage plants with shutters.

Another fact, while on the subject of cabbage plants, will be apparent to many of your readers, who are old country gardeners. It is well known that cabbage plants for spring planting are sown in Britain, in the fall, in the open garden or field, without any protection, and sold in the markets of London, Edinburgh, and Dublin, in the spring, by millions. Yet the winter climate of the British Isles is alternate thawing and freezing. Let us try it here, where we have the ground frozen solid for months, and the result is, that every plant is dead by the opening of spring. I may say I have tried it for a dozen of years

—for we always have thousands of plants left in our seed beds—but they are invariably all gone by spring. It may be argued that it is our severer climate that is the cause of the injury. That may be so to some extent; but I am satisfied that a cabbage plant, and all plants of similar hardihood, will stand a temperature of 10° below zero, provided that the ground can be thawed out in which they are planted, in a day or two succeeding it, as is the case when we have them covered by glass, and admit the action of the sun's rays. The only plants we ever have injured are at the *lower* edge of the frame, where the shading of the board does not allow complete thawing.

The reasons that lead to the popular notions of thawing and freezing, no doubt is in the known fact, that in such winters our crops of grain and grass suffer most; but in this case the cause of the injury is very different; it is in the plants being thrown out of the ground, and the roots being exposed to the action of the frost.

Again, in premature early springs we see instances of plants being injured by "thawing and freezing." We have often mild spells in March of sufficient duration to *start the sap;* this is succeeded by a temperature a few degrees above zero; the sap vessels are burst, and the plant dies. This is thawing and freezing certainly, but Nature took her spring flight too soon. This does not affect the question at issue, as I contend that, unless the sap was in motion, the injury would not have been done. I once had an experience of this kind connected with which was another of the many "lessons" received in the course of practice, and which may be of benefit to some of your younger readers. It has always been our custom to grow our roses in deep pits or cold frames during winter. On one occasion, about the middle of January, while the thermometer stood at zero at noon, we were engaged in removing the roses from the pits to a green-house adjoining. Each lot did not occupy ten minutes in the transition; but the buds had begun slightly to swell: *the sap was in motion.* The consequence of our indiscretion was, that on entering the green-house a day or two after, I found that the whole number—nearly 500 plants—were killed to the pot. The varieties were all hardy climbers. In this case it was want of experience that caused the loss. We knew enough even then not to have taken a rose plant out in full leaf in such a temperature, but we did not know at that day, that exposing a hardy plant, with the sap in motion, ten minutes, at midday, to a zero atmosphere, would be followed by such destruction.

I am afraid I have already trespassed too much on your space, though much more might be advanced in favor of the views I hold. I will be glad to hear from some of your readers who hold the opposite belief.

[This question is as important as it is interesting. Mr. Henderson's closing paragraph, it will be seen, is an invitation for a discussion with those who hold an opposite belief. We hope it will be accepted. We can promise to add some interesting facts that have come under our own observation.—Ed.]

A HALF DOZEN ANNUALS OF EASY CULTURE.

BY THE EDITOR.

The culture of annuals has not received the attention they deserve. They have an appropriate place of their own, without infringing in the least on the domain of what are professionally called bedding plants. Annuals, moreover, are so numerous, that selections may be made from them embracing every thing that is desirable in the way of form, color, and bloom. We wish to make them better known, and at the same time open up to some of our readers a new source of pleasure. We propose, therefore, to give, from time to time, an article on annuals. The sowing season being near at hand, we furnish

a list of six. The directions for culture, &c., must necessarily be brief where so many kinds are noticed at once. Those selected are easily grown, but they are all beautiful.

The seeds of these annuals may be sown in hot-beds, shallow boxes, or pots. The boxes or pots may be set in a hot-bed or in a window, having an aspect any where from south to east. It is out of the question in a single article like this, to treat of several modes of rearing annuals; we shall therefore, in this instance, confine our remarks to rearing them in rooms, for planting out of doors. It is desirable to start many kinds of annuals two or three weeks earlier than it is possible to sow the seed in the open ground; among other reasons, the garden almost immediately puts on its gay attire, and the season is thus in a manner prolonged.

The things needed are as follows: a few shallow pots or boxes, a foot or so square, and some fine light garden soil. The boxes should have in the bottom a hole an inch in diameter, which must be covered with a pot-sherd. The boxes being shallow, will need no other drainage. In the absence of such boxes or pots, the common flower-pot will do very well, but the former are much the best. The soil should be thoroughly pulverized, and well settled in the boxes, by striking their bottoms a few times on some hard substance. The seeds are to be sown in drills, which are to be from half an inch to two inches apart. The drills can be made by a sharp-pointed stick, or a case knife, or by cutting a narrow edge on a piece of board, the length of the box, this narrow edge to be pressed into the soil. The depth of the drill will vary according to directions. The seed will vegetate sooner if the soil is gently pressed upon them, which may be neatly done by the bottom of a flower pot. The soil should be moderately dry when the seed are sown; when that is done it should be watered. It will help vegetation greatly if the water is quite warm. The water should be applied gently, so as not to disturb the seed. In the case of small seeds sown near or on the surface, it is a good plan to apply the water with a whist broom or a brush. When the seed are sown, the boxes or pots should be set as near to the window as possible. The best exposure is south, and the next best east. The soil should be watered as soon as it gets a little dry on the top, but it should at no time have so much as to make it sodden. Such other directions as may be needed will be briefly stated as the plants are named. If the seeds are sown during the early part of April, the plants will be of good size to put in the border or beds by the time the weather becomes sufficiently warm. They may be put in small pots singly, or by twos and threes, and placed in a cold frame out of doors, if there is not sufficient room in the house. They should be hardened off gradually, by throwing up the window whenever the weather is warm enough. Towards the end of the month they may be placed out of doors, and a mat or piece of muslin thrown over them at night, if the nights are cool. There will be little danger of frost that can not be warded off in this way. When there is a want of room, the plants may be left in the seed boxes till they can be planted in the border; this, however, only in case of sheer necessity. But we must now proceed with our list, or this article will be too long to be read.

1. Sweet Alyssum, (*Alyssum maritimum.*) —Sow the seed thinly in drills about an inch apart, and an eighth of an inch deep. When about half to an inch high, transplant them into three-inch pots. Three plants may be put in each pot, at equal distances apart, and close to the rim. Alyssum transplants so easily, and forms such a nice mass of roots, that there is no danger of dividing the ball of earth into three parts if the plants are wanted separately in the border, or for edging a bed. Three plants make a good mass for the border. Water the plants, and place them in the shade for a few days, after which they may be put near the glass. The Sweet Alyssum is a modest little plant, bearing all the season a profusion of small white flowers, with a fragrance very much like that of new honey. It is very pretty, and is attractive in the border, singly or in clumps, besides being one of the best of edging plants for beds.

The variegated variety is one of the most beautiful edging plants we have; but it must be grown from cuttings. If we were confined to half-a-dozen annuals, Sweet Alyssum should be one of them.

2. Drummond's Phlox, (*Phlox Drummondii.*)—Sow the seed thinly in drills about an inch apart and an eighth of an inch deep. When up about an inch, transplant singly into three-inch pots, or put three plants around the edge of a four-inch pot. Water and shade the same as No. 1. They should not be kept in the house longer than is necessary, since they are liable to mildew. Phlox Drummondii grows from twelve to eighteen inches high. The colors are various. It is, in all respects, a beautiful plant, with flowers of medium size, which are produced abundantly the whole season. It may be put in the border singly, or in clumps of three or four, placed from four to six inches apart. It is one of the best of bedding plants, either for small or large beds. Used in this way, the plants should be put a foot apart. The colors may be mixed or not, according to taste. It is also good for an edging for beds. Like Sweet Alyssum, Phlox Drummondii is indispensable.

3. Ten Week Stock, (*Mathiola annua.*)—Sow the same as No. 2. When about an inch high, transplant singly into three-inch pots. Water and shade the same as No. 1. Ten Week Stock grows about a foot high. It produces spikes of handsome double flowers of various colors, lasting a long while. It is very pretty in the border singly or in clumps, the plants being from six to twelve inches apart. It is also a good bedding plant, the plants being placed a foot apart. Unless the seed is very good, some of the plants will produce single flowers. It is, therefore, desirable to reserve a few plants to fill up vacancies that may occur in this way.

4. German Asters, (*var.*)—Sow about a quarter of an inch deep in drills an inch apart, the seed a quarter of an inch apart. When about an inch high, transplant singly into three-inch pots. Water and shade like No. 1. There are numerous varieties of the Aster, growing from four inches to two feet high. They bloom late in the season. The flowers are double, and of various colors. They vary from half an inch to four inches in diameter. They are divided into distinct classes. The dwarf kinds make very good edging plants. In the border they may be planted singly or in small clumps. The tall-growing kinds should be planted singly. The Aster has been greatly improved of late years, and is now indispensable.

5. Dwarf French Marigold, (*Tagetes patula nana.*)—Sow the seed a quarter of an inch deep in drills an inch apart; the seed a quarter of an inch apart. When well out of the seed leaf, transplant singly into three-inch pots. Water and shade like No. 1. The Dwarf Marigold grows from six to twelve inches high. The flowers are mostly brown, and from half an inch to an inch in diameter. It is a neat, pretty, and desirable plant. It should be planted singly in the border. It is also a good bedding plant. When thus used, they should be planted about a foot apart.

6. Balsams, or Lady Slippers, (*Balsamina hortensis.*)—Sow in drills two inches apart, placing the seed an inch apart, and three eighths of an inch deep. When fairly out of the seed leaf, transplant singly into four-inch pots. Water and shade as usual, after which place the pots as near as possible to the glass. The Balsam grows from six inches to two feet high. They may now be divided into three classes—dwarf, medium, and tall. The flowers, which should be double, are produced for a long while. The colors are various—white, purple, crimson, blotched, striped, spotted, &c. Some kinds are finely imbricated. They are very beautiful. The Balsam should be planted in the border singly. A few plants should be kept in reserve, to supply the place of such as may produce single flowers. A well grown double Balsam is a beautiful object.

This completes our list for the present. We had made it a dozen, but this article being sufficiently long, we reserve the rest till next month, when the seed may be planted in the border. Those named above are better for being started early. We could, if desirable, make the list three dozen as easily as one.

RUST ON VERBENAS.

BY MRS. ISAAC CLEMENT, MECHANICSVILLE, N. Y.

In the February number of the Horticulturist you ask for experience as to the best mode of treating rust on Verbenas. Although not a *large* grower, I can say that, with me, the following mixture has proved effectual, though it may not be the *best*. Mix 5 lbs. of sulphur and a shovelful of lime with 8 gallons of water in a cask, or some deep vessel that you can dip a tall plant in if you wish, without injuring the top. It is best to stand some time before using. The above recipe was copied from some horticultural work some time ago, and furnished, I think, by M. P. Wilder, of Massachusetts, being a solution which he used for mildew on roses; also for the white scale. I thought any thing that would kill mildew without injuring the leaves, might kill this rust. I suppose it is designed to use only the clear liquid, but I stirred up the sediment, and gave them a coating, by inverting on my hand, and dipping up to the pots in the mixture, and let it dry on. This did not improve their looks, however, but it was a sure cure, both for mildew and rust. The rain soon washed it off the healthy leaves, while the others dried up, and soon all was covered with a new growth. This was done at the time they were set in the ground in May.

[We shall try to remember hereafter to place the ladies on investigating committees. They have a passion for flowers, and are mostly close observers; besides, they are unequaled in the application of remedies, whether to men or flowers. We are obliged to Mrs. Clement for her experience with the rust. The remedy she uses is a good one for mildew. Mr. Henderson's suggestions in our last issue take the form of a preventive, superseding the use of a remedy. It must be borne in mind, that in propagating Verbenas, the mischief is all done before the month of May. The rust attacks the plants in the cutting bed, and destroys them. Are there no others to report on this subject?—Ed.]

REMARKS UPON HARDY PERENNIAL PLANTS.

BY DANIEL BARKER.

Believing that some of the readers of the Horticulturist are somewhat interested about these good old Herbaceous Perennial Plants as ornaments for the flower garden, and are wishing for some information of the various kinds which will bear our winters uninjured, I am induced to offer a few remarks in a familiar style thereon.

Campanula Carpatica.—A plant of very elegant growth, producing through the months of June and July a succession of lovely blue flowers. Native of the Carpathian Alps.

Tradescantia Virginica.—The purple and white varieties of this plant are seldom without flowers during the spring and summer months, and although quite common, more especially the purple variety, are well deserving a place in every flower garden.

Rudbeckia Purpurea.—A very interesting plant from North Carolina, producing a quantity of its singular tape-like flowers during the summer months.

Hermerocallis Flava.—A common but beautiful plant, producing its beautiful lily like flowers in great abundance during the months of May, June, and July. Native of Siberia.

Cynoglossum Omphaloides.—A lovely little plant from Spain, producing its small bright blue flowers (in the greatest abundance) during the months of April and May. This plant will require some protection during the winter months north of New York.

Helleborus Niger.—A much neglected plant, the harbinger of spring, producing its beautiful rosy white flowers in great profusion as soon as the frost has fairly left the ground. We have had this beautiful plant in great perfection during the month of April, by covering the crowns, during the fall, with oak leaves, removing them as early as the frost in spring disappears, and placing a stand or large bell-glass over them.

Lathyrus Tuberosus.—In Germany this plant is not very pleasing to the husbandman, as its running roots render its extirpation very difficult. This side the water it is not as much inclined to ramble, and affords a very beautiful appearance during the summer months. We think it much more beautiful than the species called Everlasting Pea.

Tussilago Alpina.—We love the foliage of this interesting plant, which much resembles the leaves of the most beautiful scarlet Geranium; then its pretty erect stem, crowned with its thread-like tissues of lilac, renders it a very interesting and beautiful plant. Native of the Alps of Europe.

Centaurea Montana.—Another beautiful Alpine plant, producing its beautiful bright blue flowers abundantly during the summer.

Epilobium Angustissimum.—Yet another favorite from the Alpine heights of Europe, producing an abundance of bright purple blossoms in July, August, and September.

Hepaticus, Vars.—Greet us in spring with their lively purple, rose-white, and blue flowers—"natives," it is true, but none the less beautiful. We love them for their own sakes, and esteem them as among the most beautiful of our beautiful native plants.

Iris Pumila.—A plant of humble growth, but those beautiful flowers of purple, blue, yellow, and white rising a little above the earth to greet us in early spring, what lovely objects they appear to us, as a loved one now removed from us, when admiring them, would involuntarily exclaim, Yes, they are indeed beautiful, messengers sent from God to smooth life's rugged way. We believe it, and pity the man that can not love them.

Rubus Arcticus.—A most interesting plant from Lapland. The immortal Linnæus derived much benefit from the wine made from the fruit of this plant, during his laborious Lapland journeys. In Sweden a very good sirup and jelly are made from its berries. The flowers are a beautiful bright pink.

Dodecatheon Media.—The American Cowslip. This beautiful native plant was first noticed by Miller in the garden of Dr. Compton of London, England, to whom it had been sent from this country about the year 1709. This beautiful plant produces its pretty pendant lilac and white flowers during the month of May.

Ononis Natrix.—A very old but beautiful plant, cultivated in the days of Miller. The flowers are pea-shaped, yellow and orange. This plant will require protecting throughout the Eastern and Middle States.

Daphne Cneorum.—This elegant plant grows and flowers, in the greatest abundance, on the mountains about Vienna, and is, without any exception, one of the most lovely of perennial plants. We have not cultivated this plant in this country, (ourself.) consequently can not say if it will stand the rigor of our winters. We were pleased to see a fine large specimen at the horticultural establishment of Mr. Miller, Broadway, New York, in most luxuriant health, but did not learn from Mr. Miller whether it was taken from the open ground or green-house. We hope it may prove hardy in this country, as it is one of the most beautiful of all perennial plants, and one that no garden will be complete without.

The above are only a few from the many that might be noticed. I would recommend them as suitable for those who may have room for a few only, and who may not feel inclined to purchase new kinds of plants at a high cost.

[Our readers will thank Mr. Barker for calling their attention to these old, but still most desirable border plants. The Daphne cneorum we have several times alluded to as one of the most beautiful of border plants. It is hardy about New York, but how much farther north we do not know. It is a good plant also for the green-house. We again commend it most emphatically.—Ed.]

INTERIOR VIEW OF THE "BRIGHT NUT" EXTENDED.

LEAF-MOULD, MUCK, AND CHARCOAL IN VINE BORDERS.

BY FOX MEADOW.

"THE only question of interest to the public, in our recent discussion with 'Fox Meadow,'" says our friend Bright, "on the subject of Leaf-Mould, Muck, and Charcoal in Vine Borders, is this, Is there danger in the use of such materials?" "Fox Meadow dodges the issue." Now we can assure our friend Bright that there is not a single component used in our material organism, ponderable or imponderable, known by the name of "dodge."

Is there *danger* in the use of Leaf-Mould, Muck, and Charcoal? What an important question this becomes, Mr. Editor, when that little noun "danger" steps in. A question more vast and important than this, never affected man's material existence! And we are only sorry, sir, that the answering of such a question has not fallen into abler hands—the man of collegiate education, the man conversant with the crucible. In answering this question, we shall base our remarks on our own personal experience; for we have invariably found it to be a much better plan than to pin ourselves on the sleeves of others living and writing in different parts of the world. We shall not occupy space in this journal to show the ridiculousness of Mr. Bright trying to prove our advocacy of the use of *large quantities* of Leaf-Mould or Muck *in* Vine Borders, for your readers, if they will not willingly have "coal dust" thrown in their eyes, will read, again and again, if needs be, what we have said.

If there is danger in Leaf-Mould, *if* there is danger in Muck, *if* there is danger in Charcoal and the general use of these materials, *then* it becomes a solemn question, not merely for the cultivator of "exotic grapes," but for the agriculturist; and not the agriculturist alone, but a question of *vital interest to the whole family of the human race!* Let us look abroad over the face of the earth, and see what means the Creator of the Universe has instituted to supply man with the necessary food of life, and we shall find that the forest trees drop their foliage to the ground, and it becomes a mass of vegetable mould, oftentimes from twelve to eighteen inches in thickness, and as old age creeps over them, their branches, and lastly their mammoth trunks, drop bit by bit in rotten sticks to mother earth; yet no man ever saw a forest of "mushrooms" spring up out of this leaf-mould and rotten sticks! But what do we see? We see the farmer in this country, from the far East to the Rio Grande, in search of this very leaf-mould; he cuts down the forest, and then plows between its stumps, or drags them by force from the ground to plow and sow; but who ever heard of a farmer reaping a crop of "toad-stools?" But what have we heard, and what have we seen? We have seen the farmer exhaust the soil of this leaf-mould; plow and sub-soil till he has extracted every particle of it from the ground, and then travel West, or somewhere else, to practice the same nefarious system! The question to-day, Mr. Editor, for the horti- and agri-cultural world, is not of the "injurious" effects of leaf-mould, but how is man to reproduce it in the earth from whence, through ignorance or avariciousness, it has been taken out by his crops?

This same practice of robbing the soil of its vegetable mould is not confined to this country alone; we read of it all over the world to a greater or less extent. In Lower Germany, west of the Vistula, in Spain and France, this vegetable mould is nearly exhausted, and, like much of the land in these Eastern States, nothing is done to prevent ultimate sterility; and it appears to our mind clear that no efforts of man will be able to return this vegetable mould without allowing Nature to accomplish it by another growth of forest trees. Watch the farmers selling their old, exhausted lands, and gladly

fleeing to rich forest or black leaf-mould prairies, and ask, "Is leaf-mould injurious?" Go ask Liebig, Voelcker, those champions of "special *mineral* manures," to return to their own sterile silicious sand, from the Vistula to the German Ocean, the primitive condition of that soil!

We also invite the devotees to "special fertilizers" here in this country to try their much vaunted mineral, and all forms of "elements of the food of plants," on the barren lands robbed of their leaf-mould, and see if they can be returned to their original condition! Liebig, because he discovered a very small portion of minerals in the constituents of plants, (merely enough to give strength and firmness to the organism,) ignored the importance of vegetable mould, the prepared food of Nature for all the higher orders of the vegetable world, and seems to think that "inorganics" is the one thing needful, and seems to recognize nothing else as necessary, when it is a well-known fact, that *it is owing to the carbonic acid given out by the vegetable mould, and mixing with the water supply, that the water is enabled to dissolve the minerals and convey them to the spongioles of the plant.* Now what is the gist of the experiments of Liebig intended for practically? It is simply this, to add such constituents to a barren soil as it is in need of; to supply a plant with nourishment from an early stage of growth to full developed luxuriance, enabling it, in ratio to its strength and size of foliage, to extract a large amount of carbon, ammonia, etc., from the atmosphere, and thus obtain a large size, so that, when ultimately it goes to the manure heap, or is plowed into the land, *it shall increase the vegetable mould.*

Now if Liebig, by the use of his "inorganics" or "mineral constituents," can succeed in raising large crops, and the application of these special manures be repeatedly applied to lands almost destitute of vegetable mould, no person, we think, can be so blind as not to see the ultimate barrenness of such land, and the total destitution of all its carbonaceous matter.

Now let us examine for a moment the result of our own experiments with what are termed "special manures." The farmers of this country find that, by their constant application, their lands become less productive, what they term "worn out." Corn has been grown by the aid of "specials" till the ground will grow corn no more, and still many of them, at the present time, are as blind as bats to the real cause; and when one "special" fails they try another; and when this fails, they cry out, "It is worthless;" and some of the more intelligent will say, "It is not adapted to *our* land," when the true secret to the whole lies in the fact, that, owing to the almost utter destitution of leaf-mould, or vegetable mould, in the soil, there is not a sufficiency of carbonic acid produced to combine with water to dissolve the mineral constituents contained in these special fertilizers. This is not all, by any means; for many of these "specials," (warranted to contain the "body and soul" of fruits and trees, including all the various cerealia, alliaceous, brassicaceous, leguminous, acetariaceous, and oleraceous plants,) compounded as they are, when either in the soil, or applied as top dressing, and subjected to the influence of the atmosphere, become a crystallized mass of rubbish, almost insoluble in either earth or water. This process of crystallization is probably effected by the refrigerative power of the soil, or atmospheric heat causing evaporation; and whenever such "special fertilizers" as these are applied to soils, let the carbonic acid from vegetable mould be ever so great, it has no more effect upon it in dissolving or disintegrating the particles, than it would have upon a piece of an old glass bottle. Go on, farmers, as usual; grow large crops of hay and corn, and carry then to the markets; there deposit your rich loads of leaf-mould, and bring back to your farms some "special," the mercantile value of which will be one-third the value of that carted away. This is farming to the very essence of perfection; and if persisted in for many years, with a rapidly increasing population, the consequences will be omnious.

The great question of the agriculturist in many parts of Europe, is, how to produce large quantities of vegetable growth in order to supply their lands with a greater depth of vegetable mould? In this country, the great question seems to be, "how to produce large crops for *market* without returning one ounce of the carbonaceous matter produced back to the hungry, dying soil?" With the evidence of all these facts staring us unmercifully in the face, we are asked, "Is there *danger* in the use of leaf-mould?" We emphatically say, No.

But without its use there is danger, and not only danger, but ruin, and total annihilation. What, pray, shall we grow vines and grapes with? the same as the farmers grow *their* crops with, "special fertilizers?" Why not affirm at once that vines need no carbonaceous matter; that you have discovered *glands* in the organization of the vine adapted identically for the absorption of "tartaric acid," phosphates, lime, soda, and potash! We may just as well affirm that a son of the "Emerald Isle," brought up from childhood there, to the ripe old age of "three score years and ten," fed principally all his life on potatoes, would be destitute of hard bone, sinew, flesh, and fat, and that his chemical constituents would be all *starch!*

Our friend Bright calls our attention to "Brown's American Muck Book," (we wish he would call our attention to a little more of his *own* experience,) to show us what Muck is composed of, as if we did not know that it contained "Dead leaves, rotten trunks, and the branches and seeds of trees," and for this reason we recommend its use, and use it ourselves. "The acidity of Muck," he says, "is often so great, that stones taken from boggy land have every trace of matter that acid can attack, dissolved; in a piece of *granite*, for instance, the mica and feldspar have disappeared, and there will only be left a silicious skeleton of a stone!" This shows us the wonderful provision in Nature to attain certain ends, the proper formation of soil suitable to the growth of plants. These immense swamps, composed nearly wholly of vegetable matter, are in themselves wholly unfit for the general growth of plants, through the lack of mineral agency, and a wise provision by acids for the decomposition of all such minerals as form the constituents of soil. But to suppose that these acids, which are deleterious, exist in muck after becoming subjected to the action of the atmosphere by freezing, is purely absurd. These acids are thrown off as soon as the muck is once thoroughly frozen, thawed, and become partially dry. A chemical action at once takes place, the acids are transformed, and the carbonaceous matter becomes the recipient, attractor, and absorber of carbonic acid and ammonia; this carbonic acid, when ingrediated with poor soils, enters water and dissolves mineral substances, and the ammonia this muck contains becomes absorbed by the common earth. This muck also *darkens* the ground, therefore attracts heat, and increases its power of absorbing atmospheric gases. Being also decomposed with the *partial* exclusion of the air, much of its real carbon remains to serve the purpose of charcoal, and "sulphuret of iron" compounds *are not generated* (quite immaterial if it was, *if the muck be subjected to the action of atmospheric or an alkaline influence in the form of potash, etc.*)

[We regret that we are compelled, for want of room, to divide this article; but our "Table" matter is already much reduced in quantity.—Ed.]

To be continued.

EDITOR'S TABLE.

To Contributors and Others.—Communications, Letters, Catalogues, Periodicals, Remittances, Packages by Express, Advertisements, &c., should be directed to Mead & Woodward, Editors and Proprietors, 37 Park Row, New York. Exchanges should be addressed to "The Horticulturist."

Seeds Received.—Mr. Dreer, of Philadelphia, will please accept our thanks for a parcel of choice seed, highly prized. Mr. Bridgeman, of New York, will also please accept our thanks for a collection of choice seed, which fill a big "aching void." These gentlemen will have the satisfaction of knowing that they have strewn our path, if not with roses, at least with flowers.

The Asparagus Beetle.—C. Marié, Esq., of Tubby Hook, has brought us a box of this beetle just as we are going to press. The fact is so important, that we can not pass it over till next month. He accidentally discovered these beetles in large numbers concealed among the moss and under the bark of some trees near his Asparagus bed. They were dormant at the time, but became lively enough on being taken into the house. These beetles, therefore, pass the winter in a perfect state, ready to begin their depredations on the first start of vegetation. Mr. Marié, of course, began war upon them while he had them in mass; and our object in this brief note is to advise our readers to go and do likewise, and without delay.

A new Heliotrope.—Mr. Cranstoun, of Hoboken, last season brought us some seedling Heliotropes, one of which, named Chieftain, was so fine, that we advised him to send it out. This, we are glad to know, he has now done, as he should have done with other fine things that he has raised. Chieftain bears a truss of remarkable size, of a deep blue color, and great fragrance. The habit is decidedly good, being compact and bushy, and therefore good for bedding. It is a seedling from Beauty of the Boudoir, but the new growth more nearly resembles Voltairianum; it is, however, much superior to either. It is the best Heliotrope that we have seen.

Fuchsia Meteor.—This new Fuchsia, we see, is advertised by Mr. Henderson. We were so fortunate as to have a plant of it last season. It is very pretty, and may take its place among ornamental leaved plants. It has a compact habit, and does very well in a shady border, where its unique foliage is very attractive. The leaves are of a deep golden yellow, heavily marked with reddish brown along the middle and lower part of the leaf. It is a very striking and beautiful plant.

A Good Root Cutter.—We lately had the satisfaction of seeing, at R. L. Allen's warehouse, a new root cutter, which more nearly realized our ideas than any thing we have yet seen. It will cut either fine or large, according as the motion is reversed. Like a good rule, it works both ways. The price is moderate for a machine of its capacity. We have made rude attempts at root cutters, knowing their great value; but we give it up after seeing this.

Comstock's Rotary Spader.—Such is the title of a pamphlet just received. We have already expressed a very favorable opinion of this digger, after having seen it in operation. We are glad to learn that Mr. Comstock has now brought it before the public. It is a most valuable invention, and destined,

we think, to take its place by the side of the reapers and mowers. If we had one, we should consider plowing a pleasant pastime.

NEWBURGH BAY HORTICULTURAL SOCIETY.—At the annual meeting of this enterprising young society, the following officers were elected for 1863: *President*, H. W. Sargent. *Vice-Presidents*, R. Sterling, T. B. Shelton. *Treasurer*, Alfred Post. *Recording Secretary*, E. W. Gray. *Corresponding Secretary*, J. F. Van Nort. *Executive Committee*, D. Smith, J. H. Chapman, Charles Dubois, O. S. Hathaway, W. D. Barnes, E. Carter, I. W. Gardiner, H. Cornell, William A. Woodward, T. H. Roe.

CATALOGUES, &c.

Dexter Snow, Chicopee, Mass.—Ninth Annual Catalogue of choice Verbenas, Dahlias, Roses, Geraniums, Fuchias, Heliotropes, Pinks, &c.

Joshua Pierce, Washington, D. C.—Circular of Small Fruits.

Frost & Co., Genesee Valley Nurseries, Rochester, N. Y.—Wholesale Catalogue of Fruit and Ornamental Trees, Shrubs, Roses, Bulbs, &c., for the spring of 1863.

Proceedings of the American Pomological Society.—Received too late for notice in this number.

Andrew Bridgeman, 878 Broadway, New York.—Descriptive Catalogue of choice French Hybrid Gladioli.

William Brocksbank, Prospect Hill Nursery, Hudson, Columbia County, N. Y.—Catalogue of Fruits, Trees, &c.

John W. Adams, Portland, Maine.—Wholesale List of Hardy Evergreen Trees, &c.

E. Ware Sylvester, Lyons, N. Y.—Wholesale Catalogue of the Lyons Nurseries for the spring of 1863.

David D. Buchanan, Reid's Nurseries, Elizabeth, N. J.—Catalogue for 1863 of Fruit and Ornamental Trees, Flowering Shrubs, &c.

B. K. Bliss, Springfield, Mass.—Spring Catalogue and Amateur's Guide to the Flower and Kitchen Garden, containing a descriptive list of nearly two thousand varieties of Flower and Vegetable Seeds, &c.

John C. Teas, Raysville, Henry County, Ind.—Wholesale Prices of Fruit and Ornamental Trees, Shrubs, Vines, Plants, &c.

Saxton's Hand Book on Tobacco Culture.—Notice next month.

McElwain Brothers, Springfield, Mass.—Descriptive List of Superior Vegetable and Agricultural Seeds. Also a large and complete collection of Flower Seeds.

CORRESPONDENCE.

MR. EDITOR,—I thank you for the very interesting information communicated in reply to my inquiry of 4th ult. I should have mentioned therein, that I preferred a list of such grapes as were best adapted to *market* purposes, and I trust that you will furnish such a list to the extent of 160 vines in your April number. With the aid of the list already given, I shall take good care that my own table does not suffer for want of a full assortment of the best varieties.

In my system of training, it is my purpose to conform strictly to your recommendations in the "Grape Hints," now appearing in the HORTICULTURIST. Any suggestions, therefore, which, *in view of this*, you may be pleased to offer in regard to the distances of the vines in the rows, or other matters pertaining to the subject, will be very acceptable to a subscriber in BALTIMORE.

Baltimore, 5th March, 1863.

[For market purposes, in your latitude, we should plant as follows: Delaware, 80; Diana, 40; Creveling, 20; Concord, 20; total, 160. Delaware, Rebecca, and similar compact growing kinds, we should plant four by six feet, the latter being the distance of the rows. Diana, Creveling, Concord, &c., six by six. The trellis should be six feet high; not more. We shall always be glad to give

you any information in our power. The above is rather briefer than we could wish, but we are very much pressed for room just at this moment.—Ed.]

Mr. Mead,—*Dear Sir:*—You say that the best roots of a Grape Vine are within six to four inches of the surface of the ground, or four to six inches beneath the surface. Now will you tell me, in the March or April number of the Horticulturist, if good success may be expected, in producing grapes, if *all* the roots are within one to six inches of the surface. My soil is six inches of sod, made by the dropping of the leaves, from the bushes now standing. Under this sod is a coarse sand, quite pure. My vines, (Delawares,) so far, are set in this leaf mould, and mulched with six inches of salt hay. Shall I succeed with this depth of soil (no more) and this mulching, which I intend to replenish as it decays, and to top dress with stable manure, when the vines begin to fruit? The sand does not leach like gravel. I know this, by the color of the sand in a barn yard where cattle have been, more or less, for a dozen years. Do not fear to say that I shall not do any thing, if you think so.

I propose to set a thousand strawberry plants this spring, in soil as described above, with the same or less mulching. Will you give me your opinion of the Bartlett for one variety? I shall plant Triomphe de Gand for the other. Believe me,

Very truly yours, —.

Feb. 17th, 1863.

[We have no doubt at all that you will meet with a good degree of success with your soil. In locating a vineyard, we usually look about for the lightest soil we can find. To this we add muck, according to circumstances. You have six inches of leaf mould resting upon sand. You could very safely have mixed a few inches of the subsoil with this mould. As it is, you can gradually increase the depth of your soil. The Delaware needs higher feeding than many other grapes; you should therefore mix some manure with your mulch, which will cause it to rot sooner. This mulch will have the effect of keeping the roots nearer than four inches to the surface, and therefore should not be removed, but be allowed to decay on the surface. Three or four inches of mulch are quite as much as we should venture to use at a time. We should use it pretty freely in the stalls and barn-yard, and thus be able to apply it partly decayed, and fully saturated with liquid manure. The only fear we have in your case is, that you will carry mulching too far. As much as possible, use your salt hay around the barn, and compost it with headlands, road sweepings, leaves, manure, &c., and use the whole as a top dressing for your vineyard. In this way we can promise you a very great measure of success. Do not forget to use top dressings of lime, ashes, &c., at times.—In regard to the Bartlett, it is a fine flavored and valuable fruit, when well cultivated. If you have ever seen the Boston Pine, you know pretty well what the Bartlett is. They are wonderfully alike. The Boston Pine we have always esteemed one of the best Strawberries in cultivation. —Ed.]

Headquarters, 3d Brigade, 3d Division, 6th Corps, *Camp near "White Oak Church," Feb.* 3, 1863.

Mr. Peter B. Mead,—*Dear Sir:*—Although I have for a time quitted the service of Pomona for that of Mars, I yet much prefer the former, and look back to the many happy hours spent in study, meditation, and work. The hope often enters my mind that I may yet return to my home to rejoin the army of peace, but not till this horrid work is over, and thoroughly done, if I should keep my health.

I very much miss the pleasant monthly visits of your Journal, especially now that we are "froze up," and "all is *quiet* on the Rappahannock." My mind, recurring to you and to my former favorite pursuit, naturally stumbled on my hobby, *Native Grape Culture.* I thought of an experiment I made last spring in *root grafting the grape.*

Early in the spring of 1861 there appeared in the *Rural New Yorker* a short article on root grafting the grape. The experiment was on only three grafts. All succeeded. I showed it to a prominent nurseryman, who said, "F——, I am sorry to see it, but it is true; you are too theoretical. All that root grafting experiment is nonsense. Grapes can not be grown profitably. The Isabella is as good as any of the new-fangled kinds with attractive names. The vine needs little or no pruning. The renewal system is a curse; too much theory, too much theory."

Nothing daunted, I tried the experiment; but being compelled to absent myself for a few weeks, I left it in care of one who held the same contempt for *theory* as my employer. It failed, of *course*. "Try again, when the first is not a fair trial," is one of my mottoes. So, in the spring of '62 I at it again. Having purchased some large Hartford vines, near planting time, whose roots were considerably mangled, I cut off all that would be injurious to the plants; cut them into pieces about four inches long, being very careful to keep the lower ends all one way, tied in small bundles, and packed in damp sand. In a few days I had my hot bed made. I covered the manure with seven inches of street scrapings, which had been exposed to the weather one year. My scions were of several varieties, in most cases with the eye rubbed out, having been cut from very indifferent purchased plants. But I thought I could but fail. I would try to succeed. I cut my scions so as to leave but about an inch of wood below the eye, or where the eye should have been. These I grafted in the usual method of tongue grafting, keeping the splice together by winding two or three times round with woolen yarn, and tying. I had to be very careful not to get the roots upside down, as they had no fibers. I planted these in my hot bed, placing them in rows three inches apart, and but two inches or less in the row, the eye level, or *slightly* covered with the surface. The hot bed did not seem to have any heat in it; but in a few days they started to grow; that is, a fair proportion under the adverse circumstances, say sixty per cent., although I am not positive, not having my "Record of Experiments" here. In a few weeks, when from one to four inches high, I very carefully transplanted them to nursery rows. The best had roots over six inches long, the poorest none at all. Transplanting was a tedious job, which killed about ten per cent. By September 1st, the best Hartford had grown nearly three feet; the poorest of the poor growing kinds had not made more than a few inches. Some of the scions, and also of the roots, were not thicker than straws. The heavier the scion and root, the sooner and better they grew. I tried some good scions on the same roots, planting them directly in the open ground. They all failed. I do not think any heat was supplied by the manure in the bed, and would not be afraid to try in a well prepared cold frame. Put two grafts in a pot, and put the pots in the cold frame. You will see the advantage of pots when you come to transplant. I am aware that many New York nurserymen raise grape vines exclusively by this method, in houses heated by hot water, but I never saw any description of the process in the journals. VITIS.

[It is one of the redeeming traits of this unhappy war, that it has not had the effect of obliterating from the minds of those actively engaged in it, the love of those peaceful pursuits to which they were formerly devoted. This is a most hopeful sign; for it warrants the belief, that when the war is ended, the men of our armies will quickly resume their ordinary pursuits, and soon restore the country to its former prosperity. May you and all your companions speedily rejoin the army of peace.—The method of root grafting described by you is more or less common among nurserymen here. You would succeed in a cold frame, but not so well as in a warm one; for in the last you would have bottom heat as well as moisture, which greatly promotes success. We hope to hear from you again soon.—ED.]